

**REMARKS**

Reconsideration of this application is respectfully requested in view of the following remarks.

The Applicant appreciates the indication of allowable subject matter in claims 4, 12-16 and 27.

Claims 1-28 are currently pending in the application and subject to examination.

In the Office Action mailed April 19, 2006, claims 1, 21-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,308,049 to Bellaouar et al. (hereinafter, "Bellaouar") in view of U.S. Patent No. 6,622,010 to Honjo et al. (hereinafter, "Honjo") further in view of U.S. Patent No. 6,714,772 to Kasahara et al. (hereinafter, "Kasahara"). Claims 2, 3, 7 and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bellaouar in view of Honjo, Kasahara, and further in view of U.S. Patent No. 5,473,640 to Bortolini et al. (hereinafter, "Bortolini"). Claims 5, 6, 9 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bellaouar in view of Honjo, Kasahara, Bortolini, and further in view of U.S. Patent No. 6,396,217 to Weindorf (hereinafter, "Weindorf"). Claims 11, 17 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bellaouar in view of Honjo, Kasahara and further in view of U.S. Patent No. 5,794,130 to Abe et al. (hereinafter, "Abe"). Claims 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bellaouar in view of Honjo, Kasahara, Abe, and further in view of Weindorf. Claim 28 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Bellaouar in view of Honjo, Kasahara, Abe, and further in view of U.S. Patent No. 6,226,509 to Mole et al. (hereinafter, "Mole"). The Applicant hereby traverses the rejections, as follows.

In the Applicant's invention as recited in independent claim 1, a feedback loop in a locked state is configured, and signal flow of the feedback loop is periodically varied in a predetermined period, the predetermined period including the timing of performing an operation of phase comparison between the output frequency signal and the reference signal in the phase comparator. Thus, in the PLL frequency synthesizer of claim 1, phase comparison between the output frequency signal and the reference signal is conducted during the time period in which the feedback loop is periodically varied.

The Applicant respectfully submits that none of the applied art of record, alone or combined, teaches or suggests at least this combination of features.

In making the rejection of claim 1, the Office Action admits that the combination of Bellaouar and Honjo fails to teach wherein a feedback loop in a locked state is configured and the predetermined period including the timing of performing an operation of phase comparison between the output frequency signal and the reference signal in the phase comparator. Kasahara is cited as allegedly curing the deficiencies that exist in the combination of Bellaouar and Honjo. Specifically, the Office Action asserts that Kasahara teaches wherein a feedback loop in a locked state is configured and the predetermined period including the timing of performing an operation of phase comparison between the output frequency signal and the reference signal in the phase comparator at col. 8, lines 28-67 and col. 9, lines 1-47. See Office Action, p. 3.

However, in Fig. 2 and at col. 8, lines 24-26 and col. 9, lines 3-5, Kasahara discloses a feedback loop having a locked state during a time period of  $t_3$  through  $t_6$ , during which an output frequency is locked to a lower limit frequency or an upper limit frequency. Kasahara also discloses at col. 8, lines 31-35 and with respect to Fig. 2 that

phase comparison starts at time  $t_5$ . Thus, the period of Kasahara that includes the timing of performing phase comparison in the period of  $t_3$  to  $t_6$  corresponding to the locked state is  $t_5$  to  $t_6$ .

Kasahara further shows in Fig. 2 the current pulse CP that controls the output frequency of voltage-controlled oscillators (VCO) 15A and 15B, thereby varying a signal flow of the feedback loop. As shown in Fig. 2, however, the current pulse CP during the period  $t_5$  to  $t_6$  is zero. Thus, in the period  $t_5$  to  $t_6$ , the signal flow of the feedback loop of Kasahara does not vary. Kasahara does not teach or suggest varying the signal flow of the feedback loop during the period  $t_5$  to  $t_6$ , nor does Kasahara teach or suggest any means by which to vary the signal flow of the feed back during the period  $t_5$ - $t_6$ .

Kasahara merely discloses that the timing  $t_5$  to  $t_6$  for phase comparison is included in the period  $t_3$  to  $t_6$ , during which the feedback loop is in a locked state. Kasahara therefore neither discloses nor suggests at least the combination of whereby a feedback loop in a locked state is configured, wherein signal flow of the feedback loop is periodically varied in a predetermined period, the predetermined period including the timing of performing an operation of phase comparison between the output frequency signal and the reference signal in the phase comparator, as recited in claim1.

Thus, the Applicants submit that none of the cited references, nor combination thereof, discloses or suggests at least the combination of a feedback loop in a locked state is configured, wherein signal flow of the feedback loop is periodically varied in a predetermined period, the predetermined period including the timing of performing an operation of phase comparison between the output frequency signal and the reference signal in the phase comparator, as recited in claim 1.

To establish *prima facie* obviousness of a rejected claim, the applied art of record must teach or suggest each feature of a rejected claim. See *M.P.E.P.* §2143.03. As explained above, none of the applied art of record, nor combination thereof, discloses or suggests each and every feature recited in independent claim 1. Accordingly, the Applicant respectfully submits that independent claim 1 is not rendered obvious in view of the combination of Bellaouar, Honjo and Kasahara, with or without the teachings of Bortolini, Weindorf, Abe and/or Mole.

For at least the reasons set forth above, the Applicant respectfully submits that independent claim 1 is patentably distinct over the applied art of record and in condition for allowance.

Claims 2-28 depend from claim 1. Therefore, the Applicant respectfully submits that claims 2-28 are allowable for the same reasons as claim 1, as well as for the additional subject matter recited therein.

The Applicant respectfully requests withdrawal of the rejections.

### **CONCLUSION**

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300, referencing docket number 024016-00020.

Respectfully submitted,

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Enclosure: Petition for Extension of Time (3 months)